

In view of the herein contained amendments and remarks, Applicant respectfully requests reconsideration and withdrawal of each of the outstanding rejections set forth in the above-mentioned Official Action together with the allowance of all the claims pending in the present application, in due course.

Initially, Applicant wishes to thank the Examiner for acknowledging Applicant's Claim for Priority under 35 U.S.C. § 119 and for confirming that certified copies of the priority documents have been received in parent Application No. 08/916,408.

Additionally, Applicant notes with appreciation that the inventorship of the present invention has been changed so as to give effect to the Request for Deletion of Inventors pursuant to 37 C.F.R. § 1.53(d)(4) filed concurrently with the present application on March 30, 2001.

Moreover, Applicant notes with appreciation the Examiner's consideration of the information submitted in the Information Disclosure Statement filed on June 29, 2001 by return of the initialed and signed PTO-1449 Form attached to the above-mentioned Information Disclosure Statement.

In this regard, Applicant again brings to the Examiner's attention the various copending and commonly assigned patent applications which are divisionals of the above-mentioned U.S. Patent Application No. 08/916,408. Various of these applications have been allowed by the Examiner and various of them have been rejected by the Examiner. Applicant

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respectfully requests that the Examiner review these applications and the references of record cited therein by the respective Examiners.

Turning to the merits of the outstanding Official Action, Applicant notes that the Examiner rejected claim 9 under 35 U.S.C. § 112, second paragraph as being indefinite. The Examiner asserted that the claim is indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. In particular, the Examiner questioned the use of the term "paraxial image point". The Examiner asserted that this term is not in the specification or in the drawings and thus the Examiner did not give any patentable weight to this term.

Applicant respectfully traverses the Examiner's rejection and submits that the Examiner's assertion that the term "paraxial image point" is not in the specification or drawings is incorrect. In particular, the Examiner's attention is respectfully directed to, inter alia, page 21, lines 17-21 of the specification of the present application. The Examiner's attention is further directed to page 22, lines 11-16 of the present application. Moreover, the Examiner's attention is respectfully directed to page 24, lines 2-8 of the specification. In addition, it is respectfully submitted that the "paraxial image point" is clearly illustrated in at least Figs. 10A, 10B and 10C as the dotted line labeled "IM".

Accordingly, it is respectfully submitted that the Examiner's basis for the 35 U.S.C. § 112 rejection is inappropriate and that this term has been clearly defined, discussed,

described and explained in the specification and illustrated in the drawings. It is respectfully submitted that this term is clear, definite and unambiguous. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claim 9 under 35 U.S.C. § 112, second paragraph. Such action is respectfully requested and is now believed to be appropriate and proper.

In the outstanding Official Action, the Examiner rejected claims 1-15 under 35 U.S.C. § 103(a) as being unpatentable over HAGA (JP 06-129844) in view of HAGA (JP 07-107346). The Examiner asserts that HAGA '844 discloses a spatial filter 3 in Fig. 1. The Examiner admits that HAGA '844 does not disclose an imaging lens. However, the Examiner asserts that HAGA '346 discloses an imaging lens 7 in Fig. 1. Accordingly, the Examiner asserts that it would have been obvious to modify HAGA '844 by the use of an imaging lens to "control the light density or direction which makes the system more accurate".

Applicant respectfully traverses the above rejection and submits that it is inappropriate. Initially, Applicant notes that the Examiner has set forth no motivation from the prior art for the proposed combination. The Examiner's assertion that including an imaging lens will control light density or direction, which makes the system more accurate is not based on any disclosure of the prior art. Nor is there any evidence that the inclusion of an imaging lens will control the density or the direction. Nor has the Examiner set forth

any basis for asserting that inclusion of an imaging lens will make the system more accurate. For these reasons alone, it is respectfully submitted that the Examiner's rejection is inadequate and insufficient with respect to the features of Applicant's claims.

Moreover, Applicant notes that the component that the Examiner considers to be a spatial filter (i.e., element 3 in HAGA '844) is actually an aperture stop as set forth in the translation of the specification at the bottom sentence of page 8. As is well known, and as set forth explicitly by HAGA at, inter alia, paragraph 30 on page 14 of the translation, the aperture stop eliminates most of the diffused light thus increasing the clearness of the contrast pattern significantly.

In direct contrast, Applicant's device utilizes a spatial filter that shields a specularly reflected component of the light beam and forms an image from the diffusely reflected component of the light beam. Accordingly, it is clear that HAGA does not disclose the features of the present application and is thus an inappropriate and inadequate basis for any rejection of Applicant's claims.

While Applicant's above discussion regarding the nature of the spatial filter was directed to HAGA '844, a similar structure is utilized in HAGA '346. In particular, in HAGA '346, components 6 and 60 are described as an aperture stop. Further, at paragraph 19 (page 14 top), HAGA '346 discloses that the scattered light is mostly blocked by the aperture stop.

Thus, both HAGA references operate in manners diametrically opposite to that of the present invention. Thus, there is no evidence cited by the Examiner that teaches the shielding of a specularly reflected component of a light beam and the formation of an image by the diffusely reflected component of the light beam. At least for this additional reason, it is respectfully submitted that each of Applicant's independent claims 1, 9 and 13 are clearly patentable over the references cited by the Examiner.

Concurrently with the present Response, Applicant is filing an executed Terminal Disclaimer. This Terminal Disclaimer is being filed to remove any issue as to whether any claims of the present application and the parent application in any way conflict. However, neither Applicant nor the assignee intend to make any representation as to whether the invention defined by any of the claims of the present application or the parent application would have been obvious in view of the other or whether any obviousness type double patenting rejection would have been appropriate if the Terminal Disclaimer were not to be filed.

By the present Response, Applicant has submitted one additional independent claim for consideration by the Examiner. This claim is submitted to be patentable over the references cited by the Examiner. Newly submitted claim 19 recites, inter alia, that the spatial filter is configured to shield at least a central portion of the illumination light. It is respectfully submitted that since each of the so-called spatial filters of each of the HAGA

references are in fact aperture stops, by definition they do not block at least the central portion of the illumination light beam.

Regarding Applicant's disclosure, explicit support for this feature is shown at least in Figs. 2 and 3 of Applicant's drawings. Accordingly, it is respectfully submitted that claim 19 is also patentable over the references cited by the Examiner. An action to such effect is respectfully requested in due course.

In view of the above, Applicant respectfully requests reconsideration and withdrawal of each of the Examiner's rejections together with an indication of the allowability of claims 1, 3-9, 11-13 and 16-21 in due course. Such action is respectfully requested and is now believed to be appropriate and proper.

SUMMARY AND CONCLUSION

Applicant has made a sincere effort to place the present application in condition for allowance and believes that he has now done so. Applicant has amended several of the claims to clarify the features of Applicant's invention and has canceled several other claims. Additionally, Applicant has submitted several additional claims for consideration.

Applicant has discussed the Examiner's 35 U.S.C. § 112, second paragraph rejection and has shown the same to be inappropriate. Applicant has pointed to a clear and explicit explanation of the noted term in the originally filed specification.

Applicant has discussed the rejections set forth by the Examiner and has pointed out the significant and substantial shortcomings and deficiencies thereof. Applicant has noted the features of the Applicant's invention that are not taught, disclosed nor rendered obvious by the references. Applicant has also discussed the disclosures of the references and has pointed out how they are inadequate with respect to the features recited in Applicant's claims. Applicant has further discussed the lack of motivation for the Examiner's proposed combination of references. Accordingly, Applicant has provided a clear evidentiary basis supporting the patentability of all the claims in the present application and respectfully requests an indication to such effect in due course.

With respect to the newly submitted claims, Applicant has reviewed the features thereof and has provided a clear evidentiary basis supporting the patentability thereof.

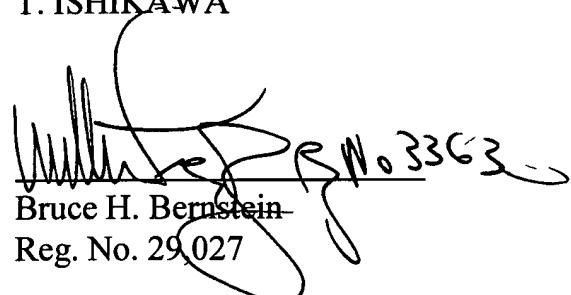
Applicant has submitted an executed Terminal Disclaimer to eliminate any question regarding judicial type double patenting without acquiescence on the part of either the inventor or the assignee that any such question exists.

Any amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

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Should the Examiner have any questions or comments regarding this Response, or the present application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
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**MARKED-UP COPY OF THE CLAIMS**

1. (Amended) A pattern reading apparatus, comprising:

a minute-area light source that causes an illumination light beam to be incident on an object surface having a pattern formed thereon as an object to be read;

an objective lens that converges a light beam carrying the information of the pattern;

a spatial filter [positioned such that a size of an image of said light source formed by said objective lens is smaller than a size of the image at a paraxial image point, said spatial filter] having a shading region that shades a portion of the light beam that forms an image of said light source from the light beam, said spatial filter shielding a specularly reflected component of the light beam and forming an image by the diffusely reflected component of the light beam; and

an imaging lens that forms the image of the pattern using the portion of the light beam that passes through said spatial filter.

3. (Amended) A pattern reading apparatus according to claim [1] 16, wherein a distance L from said spatial filter to a surface of said objective lens nearest to said spatial filter satisfies the condition $0.06f_0 < L < 0.95f_0$, where f_0 represents the focal length of said objective lens.

4. (Amended) The pattern reading apparatus according to claim [1] 16, wherein said spatial filter is positioned such that the size of the image of said light source formed by said objective lens is minimized.

9. (Amended) A pattern reading apparatus, comprising:

a minute-area light source that causes an illumination light beam to be incident on an object surface having a pattern formed thereon as an object to be read;

an objective lens that converges a light beam having the information of the pattern;

a spatial filter [disposed nearer to said objective lens than a paraxial image point of the image of said light source and] having a shading region for shading the light beam to form the image of said light source which is contained in the light beam having passed through said objective lens, said spatial filter shielding a specularly reflected component of the light beam and forming an image by the diffusely reflected component of the light beam;

and

an imaging lens that forms the image of the pattern from the portion of the light beam having passed through said spatial filter.

11. (Amended) The pattern reading apparatus according to claim [9] 17, wherein the distance L from said spatial filter to the surface of said objective lens nearest to said spatial filter satisfies the condition $0.06f_0 < L < 0.95f_0$, where f_0 represents the focal length of said objective lens.

13. (Amended) A pattern reading apparatus, comprising:

a minute-area light source;

an objective lens that makes an illumination light beam from said minute-area light source incident on an object surface having a pattern formed thereon as an object to be read and converges a light beam reflected at the object surface;

a spatial filter, [disposed nearer to said objective lens than a paraxial image point of said light source formed through said objective lens, the spatial filter capturing a diffused reflected component of the light beam which is contained in the reflected light beam having passed through said objective lens] said spatial filter shielding a specularly reflected component of the light beam and forming an image by the diffusely reflected component of the light beam;

an imaging lens that forms, at an imaging position, an image of the pattern from the component of the light beam having passed through said spatial filter; and

an imaging element disposed at the imaging position of the pattern image that reads the pattern.